REMARKS

Claims 3 and 14 have been placed in independent form. No new matter has been added. Upon entry of this amendment claims 3-11 and 14-23 are present and active in the application.

Applicant respectfully requests entry of the amendment. Claims have been cancelled, and no new limitations have been presented. Dependent claims have been placed in independent form. No new combinations of limitation have been presented. Accordingly, no new issues have been raised, and the case has been simplified for appeal. Entry and consideration of the response is respectfully requested.

Request for Reconsideration

A widely used isolation technique in semiconductor structures, silicon trench isolation (STI) traditionally includes forming a screen SiO_2 layer supported by a semiconductor substrate, followed by depositing an isolation Si_3N_4 layer over the screen SiO_2. A photoresist is then deposited and the structure is etched, opening a trench in the substrate. The photoresist is stripped, an oxide layer is deposited, and the structure is planarized via CMP. The isolation Si_3N_4 layer is then etched away.

A problem with STI is the low uniformity of the surface after CMP, which renders overetching the isolation Si_3N_4 layer necessary in order to remove all the nitride. This results in a non-uniform thickness of the underlying screen SiO_2 layer, which negatively affects the consistency of the threshold voltages of the transistors on the wafer.

The present invention addresses this problem by providing an STI method that includes covering the semiconductor substrate with a new type of isolation region. As shown in Figure 6, this region has a first sacrificial oxide layer **118** over the screen SiO_2 layer **110** and the isolation Si_3N_4 layer **106** over the sacrificial oxide layer. As now claimed, a second Si_3N_4 sacrificial layer **120** is also part of the isolation region.

With this new type of structure, the first sacrificial layer protects the screen SiO_2 layer from the overetching of the isolation Si_3N_4 layer, thus leading to a product with a more uniform surface (page 4, line 20, to page 5, line 23).

The rejections of the claims over Lou et al. are respectfully traversed. Lou et al. includes only one nitride layer, while the present invention as now claimed includes two nitride layers.

Lou et al. provides a method where an isolation Si_3N_4 layer **14** is in contact with a screen SiO_2 layer **12** (Figure 1). An oxide layer **19** is present, which lines the trench,

and lays over the SiO_2 layer **12** and the Si_3N_4 layer **14** (Figure 1). This layer is formed by thermal oxidation, and therefore forms only along exposed surfaces (col. 2, lines 42-48). The oxide layer **19** is adjacent and supported by the nitride layer **14**. There is no suggestion to form any other layer from silicon nitride.

As now claimed, the present invention includes two nitride layers, a first nitride layer and the second sacrificial layer. Lou et al. has only one nitride layer **14**. There is no suggestion to form any other nitride layers, nor is there any suggestion to form any other layers from nitride. Applicant submits that the claimed invention is neither anticipated by, nor obvious over, Lou et al. Withdrawal of these grounds of rejection is respectfully requested.

Although not relied upon in the above arguments, applicant submits that the Examiner's interpretation of the word "on" in the present application is incorrect, because it is inconsistent with the specification. Properly interpreted, the word "on" in the present application does not mean "in contact".

During patent examination, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." M.P.E.P. § 2111, citing *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). M.P.E.P. § 2111 also cites *In re Morris,* 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997):

> The court held that the PTO is not required, in the course of prosecution, to interpret claims in applications in the same manner as a court would interpret claims in an infringement suit. Rather, the "PTO applies to verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in applicant's specification."

Furthermore, claims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their 'broadest reasonable interpretation'. M.P.E.P. § 2111.01, citing *In re Marosi,* 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) (quoting *In re Okuzawa,* 537 F.2d 545, 548, 190 USPQ 464, 466 (CCPA 1976)) (emphasis in original).

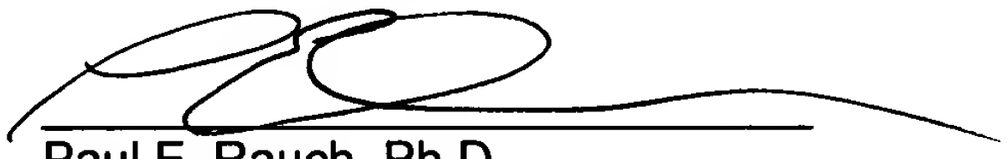
The Examiner's interpretation of the word "on" is inconsistent with the specification of the present application. The present specification states "The present invention includes a first sacrificial layer on the screen oxide layer, and optionally, a second sacrificial layer between the first sacrificial layer, and the screen oxide layer"

(page 3, lines18-19). Since a layer may be between the first sacrificial layer and the screen oxide layer, interpreting the word "on" as "in contact" would make this sentence self-contradictory (i.e. nonsense). The illustrations in the present application which show the invention are Figures 6-11. In these figures, the first sacrificial layer is **118**, and the screen oxide layer is **110**. In **none** of these figures is the first sacrificial layer **118** ever in contact with the screen oxide layer **110**. Interpreting the word "on" as "in contact" makes all the figures inconsistent with the specification, and the claims. Accordingly, applicant submits that the Examiner's interpretation of the word "on" as "in contact" is inconsistent with the specification, and therefore is not "the broadest reasonable interpretation."

The rejection of claims 20 and 21 is moot, since these claims were cancelled in a previous response.

Applicant submits that the application is now in condition for allowance. Early notice of such action is earnestly solicited.

Respectfully submitted,



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